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THE

NATIONAL GEOGRAPHIC MAGAZINE

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THE

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The following articles will appear in the Magazine within the next few months:

"The Growth of Germany," by Professor J. L. Ewell of Howard University.

"The Dikes of Holland," by Gerard H. Matthes, U. S. Geological Survey.

"The Manila Observatory," by José Algué, S. J., Director of the Manila Observatory.

"The Annexation of the West," by F. H. Newell, Hydrographer, U. S. Geological Survey.

"The Native Tribes of Patagonia," by Mr J. B. Hatcher of the Carnegie Museum, Pittsburg, Pennsylvania.

"Explorations on the Yangtze-Kiang, China," by Mr Wm. Barclay Parsons, C. E., surveyor of the railway route through the Yangtze Valley.

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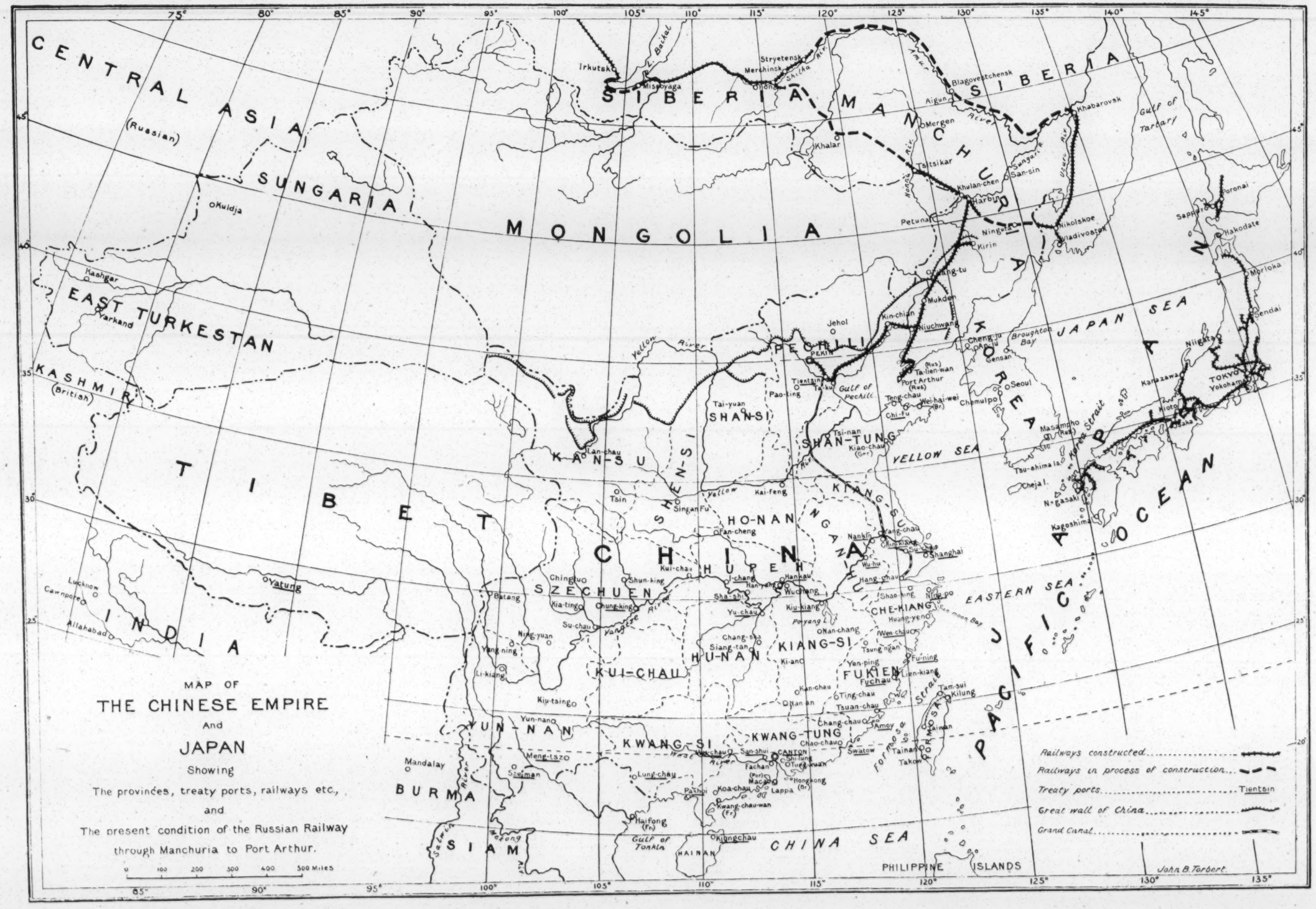

MAP OF
THE CHINESE EMPIRE
And
JAPAN
Showing
The provinces, treaty ports, railways etc.,
and
The present condition of the Russian Railway
through Manchuria to Port Arthur.

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PROBLEMS IN CHINA

By JAMES M. HUBBARD

In 1724 the Emperor Yung-ching proscribed the Christian religion, which at that time had made great progress in China. Three Jesuit priests who were in Pekin addressed a petition to him, supplicating him to revoke his decree. Yung-ching summoned them to his presence, and in an argument of some length gave his reasons for his action, in which he disclaimed any disbelief in or hatred of Christianity. "You say that your law is not a false law, and I believe it. If I thought it were, what should hinder me from destroying your churches and driving you from the empire?" He closed with these words: "You wish to make the Chinese Christians, and this is what your law demands, I know very well. But what in that case would become of us? The subjects of your kings! The Christians whom you make recognize no authority but you; in times of trouble they would listen to no other voice. I know well enough that there is nothing to fear at present; but when your ships shall be coming by thousands and tens of thousands, then, indeed, we may have some disturbances."

This remarkable statement is interesting both as showing the intelligence and liberality of a Chinese ruler nearly two centuries ago, and also as being a concise statement of one of the principal causes of the present upheaval in China. Christian law demands an obedience which undermines and finally overthrows the authority of every other conflicting law. This fact the intelligent Chinese of today recognize more clearly even than did Yung-ching, and the vindication of the authority of Chinese law is the main object of the present conflict. The distinction between the two laws, the Christian and the non-Christian, leaving religious dogmas out of view, may be said to lie in the fact that Christian law demands obedience to these three principles: the right of every man, whatever his condition or station, to his

life and to his property and the inviolability of a promise—the sacredness of the truth. Non-Christian law is practically a denial of the authority of these fundamental principles. It is not meant by this statement to affirm that there have not been in the past and that there are not now many men in China who are just, upright, humane, and strictly honest. It is an indisputable fact, however, that human life has little value in that country; justice is almost unknown in the courts, and there is no respect for the truth—a promise is kept only when self-interest makes it worth while. Now, a conflict is inevitable when two civilizations founded on such antagonistic principles come into close contact, and its ultimate cause will be found to be the assertion on the one hand, the denial on the other, of one or all of these principles. Here, again, there is not the slightest intention of maintaining that in all the relations of China with the western powers, when disputes have arisen, she has always been in the wrong, they always in the right; but it is meant simply that the cause or pretense of every aggressive act on the part of the powers has been either that a foreigner's life has been taken, his property alienated or destroyed, or the terms of a treaty or concession have not been faithfully observed.

The incident which was probably the immediate cause of the Boxer rising—the murder of two German missionaries by a mob—is a typical one. From the western point of view it was only just and reasonable that first the magistrate of the town or district where the outrage occurred, then the ruler of the province, and lastly the government in Pekin should be held responsible for the death of these two men. We may justly condemn the method which Germany pursued to secure reparation for the deed; but this does not alter the fact that she was right in her original contention that satisfaction should be given for the taking of the lives of her subjects, and that she would have failed in her duty if the outrage had been suffered to pass unnoticed. From the Chinese standpoint, however, nothing could seem more unreasonable, more absurd, than the demand that the governor of Shantung should be punished because two insignificant men were murdered by a mob, whose deed possibly he did not justify and could not have prevented had he so desired. This German demand would naturally seem to them the mere arbitrary exercise of power, with the ultimate purpose of conquest, not the fulfillment of a sacred duty.

Fertile in international disputes, sometimes leading to war, have been the commercial treaties concluded with the powers, and the

railway, mining, and other industrial concessions granted to foreigners. There is no contention that these have always been in the interest of China. In one notorious instance—the forcing her to admit opium—it was certainly not the case. But the universal experience has been that when it has seemed to be for the interest of China to evade the rights granted under the treaties, or to make the concessions valueless, she has done so, often bringing great losses to individuals who have trusted in her promises. The interior navigable waters, for instance, were made free to foreign vessels in the summer of 1898, and large sums were spent in fitting out craft for this traffic; but when, on reaching China, an attempt was made to employ them the authorities put such obstacles in the way that this "concession" became a dead letter. They justified their action by the contention that it was in the interests of the river boatmen, whose means of livelihood would be taken away by the introduction of foreign steamers, which was no doubt true to a great extent.

This, then, is a principal cause of the present conditions in China. It is the mutual hostility of two distinct and diverse civilizations brought into intimate relations. In the one rights are maintained which seem to the other no rights—an obedience to a fundamental law demanded whose authority the other does not recognize.

Another, and possibly as significant, a cause is to be found in the fact that resistance to a ruler "so soon as he ceases to be a minister of God for good" is incumbent on every Chinaman. "This sacred right of rebellion was distinctly taught by Confucius, and was emphasized by Mencius, who went the length of asserting that a ruler who, by the practice of injustice and oppression, had forfeited his right to rule, should not only be dethroned, but might, if circumstances required it, be put to death." For two hundred and fifty years the Chinese have been the subjects of Manchu or Tatar sovereigns, alien to them in race and disposition. Nomads by descent, these emperors of the present dynasty have retained some of the barbaric characteristics which distinguish a pastoral from an agricultural and commercial people such as the great mass of the Chinese are. Their single aim has been, not to develop the resources of the empire, but to consolidate and strengthen their power. One result of their methods of government is the prevalence of official corruption to an extent previously unknown. The principal officers of the provinces are appointed for three years only, to prevent their gaining an undue and dangerous influence. The chief duty of the governor with rela-

tion to the emperor is to send an annual tribute to Pekin, upon the size of which depends his favor at court. Naturally his one object during his short term of office is to extort as much money as possible from his unfortunate subjects, and his example is imitated by all his subordinates down to the lowest magistrate. Now, it has been perfectly evident to all intelligent Chinese that as their government has grown more corrupt it has become weaker. Its weakness has never been demonstrated so clearly to them as in the latest times, in the ignominious defeat by Japan, the absolute inability to resist the occupation of Chinese territory by the German, Russian, English, and French powers. Here are conspicuously, then, the conditions which make it the duty of a faithful disciple of Confucius to rebel against his ruler: injustice, oppression, and incompetency.

Added to this impulse to revolution is his unfading memory of a glorious past when China was under the guiding care of sovereigns of his own blood. It has only needed at any time in the last century a leader of ability and a definite cry to cause the discontented people to break into open revolt. Such a leader fifty years ago was Hung-siu-tsuen. The founder of a "Society of the Worshippers of God," he proclaimed "himself as sent by heaven to drive out the Tatars and to restore in his own person the succession to China." Multitudes flocked to a standard raised "to extirpate rulers who, both in their public laws and in their private acts, were standing examples of all that was base and vile in human nature." Hung-siu-tsuen defeated the imperialist forces sent against him, and in 1853 he stormed the great city of Nankin. Here a native Chinese Taiping dynasty was inaugurated, of which he was the first emperor, assuming the title of Taiping Wang, King of Great Peace, or Heavenly King. Subordinate aims were the destruction of idolatry and the prohibition of opium.

It was in its origin a religious and temperance as well as a national movement. This is not the time to discuss the causes of its rapid degeneracy and final overthrow, in 1864, by General Gordon, nor the strange blindness of the western powers to its distinctively Christian character. The Taipings, for instance, based their moral teachings on "The Ten Words" of Moses. They observed the "Lord's Day" and printed and distributed thousands of copies of translations of Genesis, Exodus, and St Matthew, as well as Christian devotional works. "The temples were burnt and thrown down," says an English eye-witness, "and not a whole image was to be seen in city or country

BUDDHIST PRIESTS — AMOY

From Commander Harrie Webster's collection of Chinese pictures

POLICE COURT — SHANGHAI

From Commander Harrie Webster's collection of Chinese pictures

for hundreds of miles." Had the powers given the movement their support, it is not impossible that the pure and high aims and motives with which it began might have been maintained. In that case there can be little doubt that the Taipings would have taken Pekin, and that a new era of peace and prosperity might have opened for China.

This conviction of the wickedness of their present rulers, whether judged by Confucian or Christian standards, has not decreased in strength during the last half-century. Many causes, on the contrary, besides those political ones already mentioned, have contributed to make it stronger today in multitudes of Chinamen than ever before. It is by no means impossible that the Boxer rising, with its watchword of "China for the Chinese," was originally a nationalist movement for the overthrow of the Tatar dynasty, as well as for the driving out of foreigners and the extirpation of Christianity. But the influences which led primarily to the Taiping rebellion have increased tenfold in force since 1850. Education of the western type has been extended to tens of thousands in all parts of the empire. A literature, both religious and secular, setting forth the principles on which western Christian civilization is founded and familiarizing the Chinese readers with Christian ideals of life and character, has been created. The intercourse with travelers, merchants, officials, and missionaries, together with the not inconsiderable number of Chinese who have visited our countries and returned to tell of what they had seen to their countrymen, has spread broadcast a more or less definite knowledge of the outside world.

The natural outcome of all these influences has been the birth of a reform party which increased in strength with such rapidity that, having gained the ear and confidence of the Emperor, it seemed but just now to be on the point of revolutionizing the ancient methods of government and education. Its principal aims are shown in the famous seven Reform Edicts issued by the Emperor in the spring of 1898. These provided for the building of railways; the abolition of the old essay system of the civil service examination and the substitution of western learning; the turning of unused temples into schools for instruction in this learning; the establishment of a great university in Pekin; the organization of a bureau for the translation of western literature into Chinese; the foundation of a patent office, and the protection of foreigners and especially missionaries. Although this strenuous, though possibly ill-timed and too sweeping, effort for reform disastrously failed, the leaders being executed or flying from

the country, yet the influences which called it into existence remain. Doubtless the events of the past few months will have increased rather than diminished the number of its open or secret adherents.

These are then, in my opinion, the principal causes of the present outbreak in China, whose ultimate consequences it is impossible for the wisest of us to foresee. It is the inevitable conflict of two essentially diverse civilizations brought into close contact. It is also the result of conditions due to a long succession of weak and corrupt rulers. These appear to me to include all special causes, both religious and political. Though the outbreak was directed apparently at first against Christian missionaries and their followers and is now for the moment a life and death contest with all foreigners, yet hatred of Christianity cannot be attributed to the Chinese as a people. Their indifference to all religion is a national characteristic. There is no question but that their superstitious fears have been often awakened by the desecration of ancestral graves through the construction of railways, by the erection of churches with high towers, and by the refusal of native Christians to join in some religious rite considered essential for the common welfare, as to avert a drought or heal a prevailing sickness.

It is more than likely, it is certain, that many good but over-zealous missionaries have unnecessarily aroused opposition through lack of tact and prudence in attacking customs and beliefs which ages of existence had made sacred. The Catholic priests especially have incurred heavy responsibilities by their claim to sit as magistrates with the mandarins in cases in which the interests of members of their flock were at stake. The motive for obtaining the privilege was a good one, to secure justice, but the result has been in many instances disastrous.

The often-repeated saying, "First the missionary, then the consul, then the general," rests on an undoubted basis of truth. The missionary no sooner gains a foothold in any land than he is closely followed by the trader of his own or some kindred nationality. He in his turn brings after a time the consul, his government's representative to protect his interests, and with the consul comes a guard which circumstances may change into a conquering army. This is a natural, an almost inevitable, sequence, and one that abundantly justifies the Chinese suspicion that the original coming of the missionary is simply to prepare the way for the general. The history of Protestant missions, we do not say Catholic, bears triumphant proof, however,

of the falsity of the assertion of such a motive in endeavoring to Christianize a heathen people.

What is to be the end of the contest now being waged in northern China? To this question there is but one answer that can be made with any degree of confidence. Pekin must fall into the hands of the allied powers. Whether or not the present rulers of the country will be captured with it remains to be seen, though all the probabilities are against it. But if they fly to the ancient Chinese capital, Singan Fu, in the province of Shensi, 750 miles inland, and set up the government there, what then? In other words, can the powers, either unitedly or singly, conquer China or any considerable part of it not adjacent to the sea? If the Chinese are united in their opposition to the powers, I believe this to be an impossibility from the physical character of the country and the number and disposition of the people.

China proper—that is, excluding Mongolia, Manchuria, Tibet, and Turkestan—is, in round numbers, 1,500 miles in extent from east to west and 1,400 miles from north to south. It is, roughly speaking, divided into three great river basins, which are separated from each other by ranges of mountains. The northernmost is that of the Yellow River and consists in large part of a plain, subject to terrible inundations from the fact that it lies below the level of the river, which now and then bursts its banks and makes for itself a new channel. It is unnavigable and apparently would afford no aid to an invading army. This is not true of the second or Yangtze River, which is navigable for nearly 2,000 miles and has numerous tributaries navigable for small craft. This is the richest part as well as the most populous of the empire. The deltas of these two rivers are connected by the Grand Canal, formerly a great avenue of trade, upon whose banks were important cities. Sections of it are now in ruins, and even if it were in good repair it runs throughout its entire length so near the coast as to be useless to an army invading the interior. The third river is the West, in the extreme southeastern part of China. It is navigable for some 200 miles and would give access only to two provinces, only one of which, Kuangtong, is of any importance.

These river basins were formerly connected by imperial roads, constructed before the Tatar conquest, and even in their ruins excite the admiration of travelers and attest the height to which Chinese civilization once reached. The present rulers have suffered them to fall into decay and comparative disuse, as rapid and easy communication between the different parts of the empire was considered dangerous,

SAMPLING TEA — SHANGHAI

From Commander Harrie Webster's collection of Chinese pictures

as affording a discontented subject people opportunities to combine against their rulers. It will be evident that to march armies sufficiently large to subdue 400,000,000 people through such a country—armies almost all of whose munitions of war would have to be transported from the coast—would be a physical impossibility.

Then the Chinese, when hard pressed, are capable of using means of defense against which the best equipped European armies, led by the ablest generals, would be as powerless as if they were naked savages. On one occasion the inhabitants of the northern province of Honan, being unable to meet an invading army in the field, "cut through the dikes of the Yellow River, 'China's Sorrow,' and flooded the whole country." The invaders escaped to the mountains, but upward of 200,000 natives perished in the flood, and the city of Kaifeng was destroyed. Another time, "in the first period of the Manchu dynasty, the Chinese had the patriotism and resolution to lay waste their own coasts as far as twenty leagues up the country, and destroy villages and cities, burn woods and cornfields—in fact, to create an immense desert—in order to annihilate the power of a formidable pirate, who for a long time had held in check the whole strength of the empire." What this extraordinary people have done more than once in their stress they would do again under similar circumstances.

But are they united and animated by the single desire of driving out the "foreign devils"? It does not seem to me that there is any evidence of this other than the mere assertion of writers who have apparently taken it for granted. A united purpose impelling the ignorant myriads of Chinese, divided in speech and in habits of life and separated by vast distances, is inconceivable. Hatred of the foreigners is, I believe, in large measure confined to the ruling classes, whose powers and privileges are threatened by the new religion and the reforms which it brings with it. The Chinese magistrate who sells justice to the highest bidder naturally hates the consular court. It is they and the literati, or educated class, from whose ranks they are drawn, who foment these disturbances; who placard the cities with inflammatory invitations to rise up against the foreigners; who circulate scandals about the Christian rites, similar to the assertions made and believed in France and Austria about the Jews. That they are able to arouse the common people to action here and there, especially in the coast provinces and in large cities and their neighborhoods, recent events have proved. It is possible, but hardly conceivable

that they could do the same throughout the empire, for it should be remembered that there are still great districts, inhabited by millions of people, into which missionaries have never gone and through which foreign travelers rarely, if ever, pass. At present I am convinced that the great mass of the people throughout China are ignorant of what has taken place at Pekin and Tientsin; they are indifferent as to who rules over them, provided they are left in peace to till their fields and reap their harvests.

Does the western world need China, and, reciprocally, does China need intercourse with the Christian nations? Many persons question seriously whether we ought to force, as it were, our civilization, our commerce and manufactures, our modes of government, our literature and religion, upon an unwilling people, the mass of whom are probably as well off materially as the mass of the people of Europe. They are probably better off than the Russian peasants. The accounts of some travelers lead one to believe that in some parts of the province of Szechuen the inhabitants surpass all other peoples in their apparent prosperity and contentment. Why should we come and disturb this peace? In answer it is only necessary to say that the commercial and religious invasion of China by the western nations is a part of the progress of the world. China is no longer at a distance from us, but is the near neighbor of Russia, England, France, and the United States. She is one of the great nations of the world, and mutual intercourse between her and them is inevitable. Its advantages, even from the lowest material point of view, are not all on one side. Her foreign commerce, amounting to nearly $300,000,000 annually, not only pays a third part of the expenses of the central government, but enriches her merchants, tea cultivators, and the raisers of silk as much as it does our manufacturers of cottons. And this commerce is but a small fraction of what it will be when her vast virgin fields of coal and iron are exploited and the whole empire is thrown open without restriction to all who desire to enter.

CHINA AND HER PEOPLE—SOME REFLECTIONS ON THEIR MANNERS AND CUSTOMS, HABITS, AND LIVES

By Commander HARRIE WEBSTER,

United States Navy

The geographical boundaries of China proper, that huge Mongolian Empire, about which the world is now so deeply concerned, are: on the north, Mongolia, from whence, at irregular intervals in the past, have come those overwhelming currents of humanity which have modified in a remarkable degree the race characteristics of the Chinese; on the east, the great Gulf of Pechili, the Yellow Sea, and the Pacific Ocean; on the south, the China Sea, the Gulf of Tonkin, Tonkin, and Siam; and on the west, Upper Burma and Tibet. Some writers, notably Wells Williams, the well-known author of "*The Middle Kingdom*," divide China proper into three portions—the mountainous, the hilly, and the level country. Employing this system, we find more than half of the whole area is mountainous, and lies west of a north and south line passing through the city of Wuchang, in the province of Hupeh. The hilly portion lies east of this same line and south of the great Yangtze River. The great plain or level country comprises the remaining part of the empire, and forms the northeast portion. The agricultural wealth of the nation lies in the level country.

China is divided into eighteen provinces, each of which is governed by a viceroy, who administers the affairs of his province nominally under instructions from Pekin, but actually in accordance with his individual ideas. During the progress of ages the spoken language of these provinces has undergone such modifications that it is practically impossible for a traveler to understand or be understood outside the borders of his own province. The partial exception to this rule is the Cantonese. The spoken tongue of the province of Canton, or Kuangtong, as it is pronounced by the natives, appears to be the parent speech of a large part of China, so that today a native of Kuangtong can make his way with more or less ease from one end of China to the other. A witty Chinese gentleman once said to the writer at a native dinner in Shanghai, "With two languages, a man may travel all over the world. Knowing the Kuangtong dialect, he

may travel all over China, and with English he can make his way over the rest of the world." The written language, however, is practically alike for all portions of the empire, and the educated Chinaman can make his wants known with brush and paper in any part of the kingdom.

The two rivers flowing through the Celestial Empire with which the world is most familiar are the Hoangho, or Yellow River, and the Yangtze. The first is frequently called by Chinese writers "The Sorrow of China," on account of its frequent and disastrous inundations. Rising in Kuku-nor, it enters the province of Kansu, and passes the ancient city of Lanchau, capital of the province, eight hundred miles from its source. Flowing along, parallel with the Great Wall for five hundred and thirty miles, it passes beyond the borders of China into Mongolia. Reëntering the Flowery Kingdom between the provinces of Shensi and Shansi, forming their boundary, the river, increasing in size as it flows, strikes eastward to the sea through Honan and Shantung, passing the walls of Kaifeng and Tsinan in its course. In former days the Yellow River, after passing Kaifeng, flowed still farther to the eastward, through the province of Kansu, sweeping into the Pacific Ocean some hundred miles north of Chinkiang, on the Yangtze.

The great Yangtze rises in Tibet, and after flowing more than a thousand miles through a thinly populated country passes into China near Batang, in the province of Szechuen. At this point it is locally known as the "Kinsha," or River of the Golden Sand. Flowing from here south and east, it forms the boundary between Szechuen and Yunnan, receiving a large tributary, the Kialing, from the north. Passing through the province of Szechuen and past the walls of Chungking, the river enters the populous province of Hupeh and rushes through the magnificent gorges to Ichang. Hankau, Wuchang, and Hanyang, at the confluence of the Han River with the Yangtze and the head of deep-water navigation, are passed, and from here, skirting the northern extremity of Kiangsi Province, at Kiukiang, near the mouth of the celebrated Poyang Lake, the river strikes northeast, entering the province of Kiangsu near Nankin, the ancient capital. After intersecting the Grand Canal at Chinkiang, the Yangtze discharges its immense volume of water through two magnificent deltas.

The canal system of China is the most extensive in the world, with the possible exception of that of Holland. Wherever the lay of the

A TYPICAL CHINESE VILLAGE AND CANAL

From Commander Harrie Webster's collection of Chinese pictures

land permits, the thrifty native has made a canal. Thus he is enabled to carry the products of his labor to a market with the minimum of expense. It must be acknowledged, however, the process is carried out with the expenditure of the maximum of time. The waterways range in size from the Grand Canal, hundreds of miles in length and navigable by deep-water junks, to the little "neighborhood" canal of barely sufficient width for two sampans to pass each other. They serve not only the purposes of navigation and, in place of roads, for trade and commerce, but also as local fish preserves, as breeding pools for water-fowl, and for laundry purposes. In most of the canals there is more or less current, so they are not the menace to health that is generally supposed.

There are 31 "open ports" or "treaty ports" which by various treaties with the government are open to the traders of all nations. No passport is necessary to enter these cities; but the prohibition against travel outside the free zone is strictly enforced. The free zone extends to the walls of the city, and the curious traveler ventures beyond at his own risk. Notwithstanding the fact that these ports are open to the commerce of the world, Great Britain is about the only nation which enjoys the full intent of the various treaties and conventions on the subject. This is especially true of the rich and populous towns of the Yangtze Valley.

The present Emperor of China, Kuangsü, is the son of Prince Ch'un, the seventh son of the Emperor Tao-kuang. He succeeded his cousin, the late Emperor Tung-chi, who died childless January 12, 1875, of smallpox. The proclamation announcing the accession of Kuangsü was as follows:

"Whereas His Majesty the Emperor has ascended upon the Dragon to be a guest on high, without offspring born to his inheritance, no course has been open but that of causing Tsaitien, son of the Prince of Ch'un, to become adopted as the son of the Emperor Wen-tsung-hien (Hien-fung), and to enter upon the inheritance of the great dynastic line as Emperor by succession:

"Therefore let Tsaitiên, son of Yih-huan, the Prince of Ch'un, become adopted as the son of the Emperor Wen-tsung-hien and enter upon the inheritance of the great dynasty as Emperor by succession."

The present Emperor is the ninth sovereign of the Manchu dynasty of the Ta-tsing (Sublime Purity), which supplanted the dynasty of Ming in 1644.

There exists no law of hereditary succession to the throne, but it is left to each sovereign to appoint his successor from among the members of his own family. The late Emperor, dying suddenly in

his eighteenth year, did not designate his successor, and it was in consequence of palace intrigue, directed by the Empress Dowager, in concert with Prince Ch'un, that the infant son of the latter was declared Emperor. The Emperor Kuangsü, now in his twenty-ninth year, nominally assumed the reins of government in March, 1887. He married Ye-ho-na-la, niece of the Empress Dowager, February 26, 1889, and was enthroned in March, 1890.

The Emperor is the spiritual as well as temporal sovereign, and as high priest of the empire can alone perform the great religious ceremonies. No religious hierarchy is maintained at public expense, nor is any priesthood attached to the Confucian or state religion.

A characteristic of the Chinaman is his desire for education. So thoroughly imbued is the national spirit with the thirst for knowledge that it is safe to say that no other people are so generally and so well educated as the Chinese. Every boy is compelled by law to attend school a certain period of the year. Among the poorest classes, where the struggle for existence is fierce and unrelenting, among what are known as the coolie class, scarcely an individual can be found who cannot read and write, and this, too, not haltingly and with difficulty, but freely and, so far as can be understood by an observer, accurately and understandingly. The word "coolie" is not a term of reproach, but signifies laborer or workman, and is used among the Chinese themselves with this meaning. As in other parts of the world, the coolies or laborers are recruited from the lowest strata of the body politic; but, as has been pointed out, practically without exception they read and write their own complicated language.

During a recent cruise in Chinese waters I became much interested in noting the manner in which the lowest classes acquired their ability to read and write, and the result of several years of observation is that their education comes largely through the steady and persistent use of the stray minutes of life. As soon as a piece of work is done, while waiting for a fresh job, or even standing in line, waiting his turn to deposit his package, bale, or cask, the coolie plays with a stick or bit of bamboo, writing a character over and over, or studies a few characters written on a bit of paper brought from a pocket. Thus the minutes of waiting are employed in the acquisition of one more tiny bit of knowledge.

In physical appearance the natives of China vary widely from extreme north to south. While our experience in the United States leads us to think the race is small and undersized, a brief residence

in the northern provinces of the empire will go far to dispel this impression. At Chifu, Taku, and Tientsin one is struck by the stalwart appearance and height of the natives. At the first-named port large numbers of the men are six-footers, and among the boatmen of Chifu it is no uncommon thing to see a native over six feet in height, weighing nearly or quite two hundred pounds. In the south, however, the average is more nearly accordant with specimens we encounter as laundrymen, gardeners, and "coolies" generally in the United States. The well-known queu or pigtail by which Chinamen have become so well known is the visible mark imposed by their Manchurian conquerors in 1644. Notwithstanding the length of years since the imposition of this mark of subjection, there are large numbers who resent the queu. At Swatow the singular spectacle is presented of Chinamen wearing turbans! Unable to avoid shaving their heads and plaiting their hair in accordance with the Tatar edict, these people conceal the marks of their degradation beneath a veritable turban, fashioned closely after the Arabian model. It presents a curious anomaly in a country so thoroughly controlled by precedent and tradition.

The singular usages and customs of the people of China have been the wonder and comment of other and younger parts of the civilized world for many centuries. The general trend of such comment has been astonishment at the unusual manners and methods prevailing among the millions of the yellow subjects of the Son of Heaven. In clothing, style of living, care of children, amusements, and in many other points the Chinaman is different from the rest of the world. This view, however, is not quite a correct statement of the matter. The Chinese methods undoubtedly antedate western methods, and so, logically, the Chinaman, having adopted a certain manner of living, has the prior right to the system, and variations from his system should be counted singular. I am well aware this method of argument is not the usual one, but it is certainly the most logical. Those of the East naturally take this view, and express surprise that so many things are "done the wrong way" by their western brothers.

Intimate contact with the civilization of China impresses the observer with the conviction that nearly all their methods are the results of long experience, a survival of the fittest in pretty nearly every branch of human needs and conveniences. One feels that the experimental stage has long since passed away. A different way of doing a piece of work does not enter the mind of the Chinese operator

for the reason that *all other methods have been tried and the present one is the survival!* The claims made by the Chinese of priority in the use of many articles and methods are not infrequently well taken, and the writer has often been surprised in observing the common use of articles and their methods of manufacture which in other parts of the world are novelties or inventions of comparatively recent date.

The opposition of this nation to machinery is well known. It exists not only among the presumably ignorant who labor for their daily support, but among the rich and highly educated as well. The reason for this opposition is founded upon social and economic conditions unlike those in any other part of the world.

The Statement is as follows: First, every man in China is a worker, and only by untiring industry is he capable of feeding and clothing himself and family.

Second, all branches of industry are full. There is never lack of labor nor of work to do, and so nicely adjusted have become the economic conditions through centuries of struggle that practical content reigns among the workers, and any upsetting of the equilibrium of supply and demand produces widespread distress.

The Proposition.—Introduce a machine which shall, by the supervision of one man, be able to do the work of ten men.

The Result.—Nine men are thrown out of that particular task. There is no outlet for their industry for the reason given in paragraph 2 of the Statement. Therefore these nine men must starve, steal, or emigrate. From my observation this is pretty nearly the correct status of the working world in China and is the underlying reason for the opposition to labor-saving machinery. In this great empire a labor-saving tool or machine is an economic curse, and will remain so until the conditions are greatly modified throughout China.

It is to be understood, however, that this argument applies altogether to existing industries rather than to new forms of production and labor. The strength of Chinese performance consists in the interminable application of minute effort at a given point. In other words, the application of manual labor will, in the long run, carry out any task, however great, and in the doing the man earns his bread by the sweat of his brow. *From his point of view* he has no reason for discontent. He is therefore industrious, frugal, and probably happy. In China, the Chinaman is a good citizen.

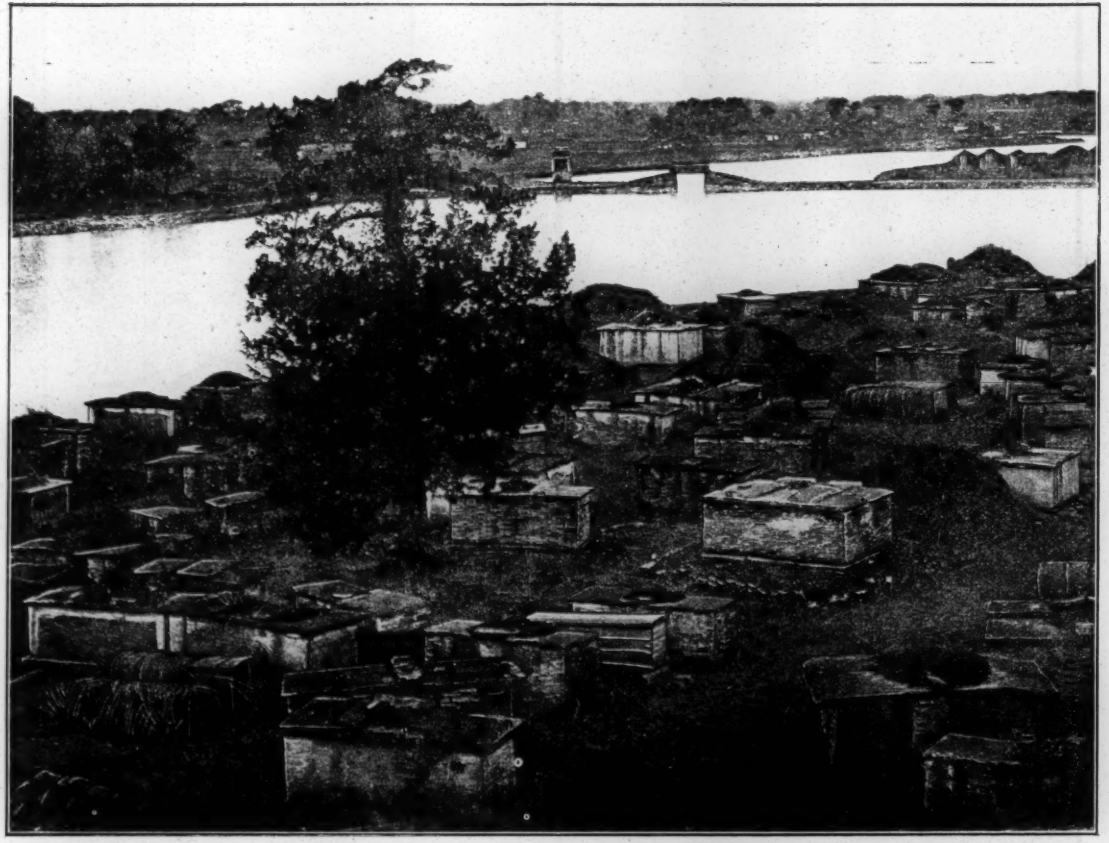
Trade-unions for mutual protection are prevalent here to an extent undreamed of outside the Flowery Kingdom. Naturally the

outsider cannot know much of the details of these organizations, but the foreigner's experience will soon tell him the uselessness of contesting the action of any guild or workman's union whose members refuse to work for him. Without excitement or any evidence of dissatisfaction, the coolies working for the foreigner will strike, and no trouble will ensue because of attempts of others to fill the vacant places, as there are no applicants, and the work under way will simply remain unfinished until by mutual agreement the point in dispute has been settled. Strikes in China are seldom disorderly, and the boycott feature is never in evidence.

The question is often asked, How does the education of the better class compare with the educational attainments of a similar class in the United States? This is a very difficult question to answer, and to give a clear explanation would take much time and space. The education of the Chinese boy begins as soon as he can think, and is pursued relentlessly through boyhood and until, by marriage or the demands of business, he seeks a new path for himself. The system of education is based primarily upon thoroughness, and as time is not regarded as possessing any value, it can be understood that each branch of study is carried to its ultimate. The study of the Chinese classics is of the first importance; music, natural philosophy, astronomy, geography, botany, and engineering, all in turn receive careful attention, and because the end proposed to their minds is different from the western code, it does not follow that the range of study or the intricacies of the subjects are in any degree less than with our students. In fact, I am sure that in subtlety of analysis, in the pursuit of the formulated idea to the ultimate and logical conclusion, the Chinese student is far superior to his brother of any nation.

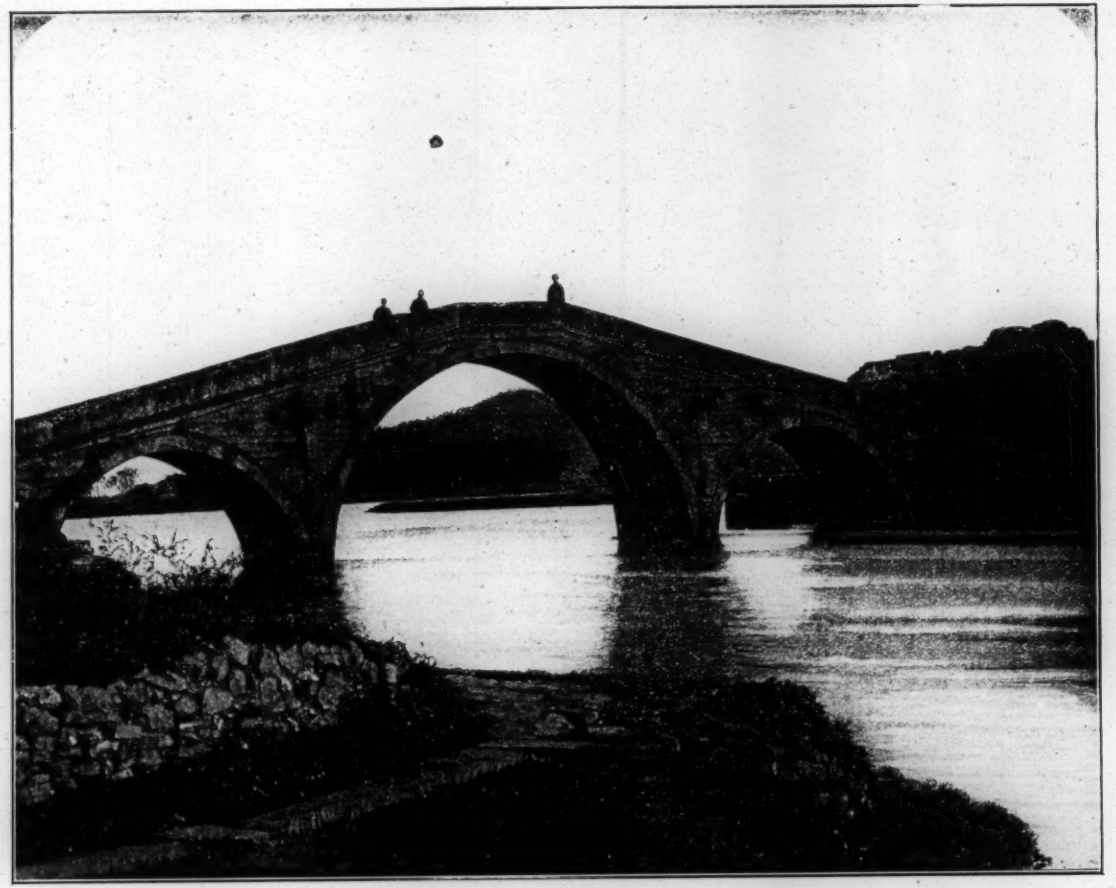
Add to all this the gift by nature of a marvelous memory, accustomed from its first efforts to minute and accurate observation, and it can be understood that the knowledge of an educated Chinaman is of the most superior order *from his point of view*, and even from our point of view it calls for the highest mental efforts of which the human brain is capable; but as their plane of thought and code of ethics is so opposed to what is called "modern progress," their knowledge does not appeal to the western mind as being a real education. In mental capacity the educated Chinaman is undoubtedly equal to the highest efforts of the best races.

The business capacity of the race is recognized the world over. It is in this direction that the Chinaman's principal modern triumphs



A CEMETERY AT CHINKIANG

From Commander Harrie Webster's collection of Chinese pictures



A CHARACTERISTIC CHINESE BRIDGE

From Commander Harrie Webster's collection of Chinese pictures

have been achieved. Throughout the East he controls the business of whole communities, and in the banks and financial institutions throughout India, China, Japan, and the Malay Archipelago the Chinese "*Shroff*" is the business center around which flourishes the vast commerce of the richest portion of the civilized world. Testimony to the Chinaman's business integrity is unvarying, and while it is true that no one is keener in driving a bargain, as soon as the terms of that bargain are settled the Chinaman may be depended on to carry out his agreement without a murmur, even though circumstances may have so changed as to threaten financial ruin. All through the East one is always told that a "Chinaman's word is as good as a bond." Under all circumstances he is commercially honest.

In mechanical ability and skill the Chinaman stands exceptionally high. In the foreign shops and factories of the East the native artisan compares favorably with the workman of any other nation. I refer entirely to western tools, methods, and machinery. In a broader sense, in the erection of bridges, construction of temples, roads, canals, in the wide sense of the engineer, the Chinaman compares well with his fellows in more civilized lands. Many of his bridges are marvelous not only for their beauty and accuracy of construction, but in the difficulties overcome and in the solidity of their foundations. Here the Chinaman's characteristic of thoroughness expresses itself. "The Chinaman builds for all time; the rest of the world builds for today."

The position of woman in the Celestial Empire is difficult for the western inquirer to grasp, and as the legal and political status of the sex is very low, it is hard to understand the immense social and commercial influence possessed by the wives of the better class of Chinamen. I say "wives" designedly, because plurality is the rule rather than the exception. In general knowledge of affairs the women of China compare favorably with their husbands. Women are educated through a system of private instruction.

In these notes on China and her people it has been the intention of the writer to touch on points of personal or individual interest. The genius of the native Chinaman cannot be grasped in a day, nor is it easy to acquire a knowledge of the family life of these people. Distrust of the "western barbarian" has become a part of the Chinaman's nature, and not until long acquaintance ripens into friendship does the real man appear. My opportunities for observation and comment extended over a period of nearly forty months, and I count the friendship of several Chinamen of the upper class among the pleasantest memories of a cruise on the China station.

THE NATIONAL GEOGRAPHIC SOCIETY'S ECLIPSE EXPEDITION TO NORFOLK, VA.

By MARCUS BAKER,

U. S. Geological Survey

Among the most interesting periodic occurrences in the proceedings of the National Geographic Society must be counted the annual excursion or field meeting, held in the early summer, when such members as are still in Washington are wont to visit, usually by special train or steamer, one or another of the many places of geographic or historic interest within a few hours' ride of the National Capital. Harpers Ferry, W. Va., Frederick and Annapolis, Md., Fredericksburg, Charlottesville, Monticello, the Dismal Swamp, Manassas Gap, and the Shenandoah Valley, Va., have all been explored during recent years under the leadership of men whose training or experience specially fitted them for their delightful task.

When it became known that the path of totality of the eclipse of the sun that was to occur on May 28 of the present year would be within easy reach of Washington, and that Norfolk, Va., with all its surroundings of scenic beauty and historic interest, would be a place from which the eclipse could be well observed, it was decided by the Board of Managers to charter a steamer and afford the members of the Society an opportunity to take one of the most delightful of excursions, and at the same time witness that rare and interesting event, a total eclipse of the sun.

In accordance with these arrangements, some 250 persons embarked on the steamer *Newport News* on Sunday evening, May 27, to wake up next morning in Hampton Roads, after a smooth sail of some 195 miles down the Potomac River and Chesapeake Bay. The eclipse was witnessed from the Portsmouth Navy Yard, under conditions that left absolutely nothing to be desired.

From Portsmouth the steamer proceeded to the shipyards of Newport News, from Newport News to Yorktown, and from Yorktown to Old Point Comfort and Fort Monroe, leaving for Washington in the evening and arriving the next morning in time for breakfast.

The company included the veteran astronomer, Dr Simon Newcomb; the revered and beloved author and divine, Dr Edward Everett Hale, and a large representation of the various scientific departments of the Government service. The excursion was unmarred by the slightest untoward incident, and will long be remembered by those who had the good fortune to participate in it.

THE SCIENTIFIC WORK OF THE NATIONAL GEOGRAPHIC SOCIETY'S ECLIPSE EXPEDITION TO NORFOLK, VA.

By Simon Newcomb, LL. D.

The expeditions spread along the path of total eclipse in the accessible regions over which it swept were so numerous and so well equipped that it was quite unnecessary for the National Geographic Society to attempt their work, even had it possessed the means of doing so. Its plan was therefore restricted to a modest attempt to supplement the work of others by such observations as did not require elaborate instrumental means or long previous preparation. The operations finally undertaken were three in number:

1. Observations of the times of contact and their comparison with prediction.

2. Photographing the sky during totality, the corona and other surroundings of the sun included, with the view of finding any unknown object and of making photometric comparison of the light of the sky on the disk of the moon with that away from the sun.

3. Observations of the so-called shadow bands.

The following imperfect summary of results is all that it is possible to prepare at the present time.

TIMES OF CONTACTS

As the observer had no optical instrument but a good spyglass, the second and third contacts were the only ones seriously attempted. Such an instrument is as good as a larger one for these contacts. The time was determined by a pocket watch, which was compared with the standard clock at the Naval Observatory the day before and the day after the eclipse. The corrections of the watch to eastern standard time thus determined were:

May 27. ..... Corr. = — 28^s.2
May 29. ..... Corr. = — 28^s.5

The correction at the time of the eclipse would then be — 28^s 3. It may be remarked that by a long series of comparisons the accidental daily variation of the watch is about ± 0^s.2, and that the mean rate during the three weeks before the eclipse chanced to be about zero.

As the second contact or beginning of totality approached, the observer was struck by the clearness with which a long arc of the chromosphere came out on each side of the diminishing arc of the sun's limb some seconds before totality. The observation of the beginning of totality was very satisfactory, the distinct arc of the sun's limb contracting slowly at first, then more rapidly, until it at length vanished at the following moment:

	Hrs.	Min.	Sec.
Contact 2. Watch time	8	52	54.5
Corr. of watch	..	..	−28.3
Standard time	8	52	26.2
Greenwich time	1	52	26.2
	Hrs.	Min.	Sec.
Contact 3. Watch time	8	54	22 ± 1
Corr. of watch	..	..	−28.3
Standard time	8	53	53.7

Duration of totality, 1 min. 27.5 secs.

The observation of contact 3 was less certain than that of contact 2, the doubt being ± 1 second.

The tabular times of contact for Norfolk as given in the *American Ephemeris* for 1900, with the corrections thus derived from observation, are:

	Tabular time.		Corr.
Contact 2	8 hrs.	52 min. 32.6 sec.	−6.4 sec.
Contact 3	53	59.1	−5.4
Duration	1	26.5	+1.0

PHOTOGRAPHS

The photographs were taken by Messrs W J McGee and W. H. Holmes with a large camera of 6 centimeters aperture and about 50 centimeters focus. It was fixed upon an inclined table without clock or other motion to follow the sun. Three plates were successfully exposed. A fourth was spoiled by the end of totality coming on before it was cut off.

These plates were specially prepared for the use of the expedition by Professors E. C. and W. H. Pickering, of the Harvard Observatory, and were sent to that observatory for development, examination, and report. The report is not expected in time for this number.

SHADOW BANDS

Many unexplained optical phenomena have been described in connection with total eclipses. The irregular, sporadic, and inconsistent

character of most of these justify us in classifying them as optical illusions. To this class probably belongs the seeming coming on of the darkness by a series of waves. A class of phenomena seen so frequently as to show that, whether purely optical or not, they follow a law, and are due to some definable cause, are known as shadow bands. An attempt was made to observe these on the plan outlined by the Secretary of the Smithsonian Institution. While the observations, through an unfortunate neglect to make preparations in advance, were not carried out in all the detail recommended in the plan, results were obtained which may not be devoid of interest.

Two parties took part in the observation. One, a large one, observed on the upper deck of the steamer as she lay at the navy yard pier, the other on the pier itself. Both made their observations on several white sheets spread out on the deck or ground, the shades on which they carefully watched.

From the steamer Mr Elbert B. Hamlin reported: "Bands pointed northeast and southwest. They vibrated at right angles to the way they pointed; this before totality. They came on from the northeast. After totality they were less pronounced; came on from southwest and pointed northwest and southeast. They moved slowly and were about two inches wide." Some of the party laid down sticks to show the direction of the bands, and inquiry was made by other members as to the direction they noted. Although in most cases the direction assigned agreed with that of Mr Hamlin, one observer, at least, saw the bands as lying northwest and southeast, while the three sticks ranged over more than 45 degrees.

On the wharf observations were made by Mr Claude Bennett and several others. As Mr Bennett's observations were sent to the Smithsonian Institution for discussion and comparison, they need not be given in full here. They may be expected to appear, with a number of others, elsewhere. From verbal statements made on the spot by Mr Bennett and two other observers, it would seem that there was no agreement as to the nature of the phenomena. Two observers assigned a motion in opposite directions; the third saw no well-defined motion and no distinct bands, but only an irregular flickering.

Some general remarks on the nature and cause of these phenomena suggested by the preceding observations, may not be out of place.

Two possible hypotheses are to be tested: (*a*) That the variations of light and shade are physical realities, and (*b*) that they are purely optical. It is known that when an eye is suddenly removed from

bright sunshine into comparative darkness its power of estimating intensity of illumination is so disturbed as to give rise to great seeming fluctuations—that is, a constant illumination will for a time seem irregularly variable. It is possible, though not very probable, that the seeming bands may be due to this cause, and may therefore have no physical reality.

But a possible physical cause for light fluctuations on a sheet is not far to seek. The twinkling of a star shows that if a star shone brightly enough to illuminate a large white sheet we should see the illumination to be a constantly changing and flickering one, varying in a way too irregular to admit of exact description. Possibly the same may be true of the light cast by the very thin crescent of the sun just before and after the total phase of an eclipse.

If this be the true explanation the appearance of well-defined bands of definite breadth will still remain unexplained. But this discordance already mentioned seems to show that this assignment of precise forms is of the nature of an optical illusion. Illusions of this sort are so common and so easy to fall into, we might almost say unavoidable, that no improbability attaches to them. The more careful and exact an observer is, the more likely he is to detect them in his own case and the less confidence he will have in his own observations of such phenomena as those in question.

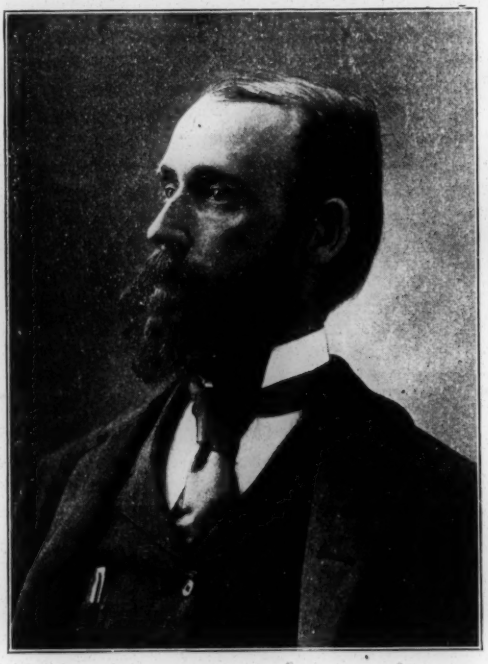
HYDROGRAPHIC WORK OF THE U. S. GEOLOGICAL SURVEY

In the state of New York much interest has been aroused in the question of the water-supply of the state, both because of its importance for supplying power to manufactories and because of the proposed deep waterway from the Great Lakes to the ocean. Owing to the scarcity of water, some of the higher levels of the Erie Canal are operated with difficulty in the dry seasons. For a larger canal much more water must be had. How this extra supply may be obtained requires careful examination conducted through several years. On this problem the Hydrographic Division of the U. S. Geological Survey is now at work, coöperating with state officials of New York. The greater part of the water comes from the Adirondack Mountain area, where the forests are being preserved largely for their beneficial influence in water conservation. The extent of this influence is also being investigated, in order to determine, if possible, the value of the forest in regulating the stream flow.

The long continued drought in California has forced public attention to the imperative necessity of providing water storage for the irrigation of farms and

orchards and for regulating the streams used for water-power and for industrial purposes. The State Legislature at its last session made an appropriation for investigating this subject, but the act failed to become a law. By private subscription, however, considerable sums have been raised for coöperation with the U. S. Geological Survey in carrying forward the examinations of reservoir sites and measurements of streams, notably on the headwaters of King River and in adjacent portions of the high Sierras.

In Montana the necessity for water storage for the further development of irrigation and power has been appreciated, and requests have been made for the examination of various natural basins suitable for holding floods. In particular the headwaters of Milk River have attracted attention, because these streams flow northerly into Canada, where, uniting, their waters return to the United States. It has long been the desire of the people of Montana to save the flood waters and carry them by suitable canals out upon the arid lands east of the mountains, instead of allowing them to flow northerly across the international boundary.



F. H. NEWELL,

Chief of Division of Hydrography, U. S. Geological Survey.

In the Southern Appalachian area, especially in Georgia and Alabama, many cotton mills are being constructed which derive their power from the rapid streams. This presents another task for the Hydrographic Division. Systematic measurements of the streams are needed to determine the low-water flow and the possible minimum power from each important river. Throughout the entire mountain area typical streams are being measured. Also in the arid west, from Central Kansas to the Pacific Ocean, the measurements of scores of streams are being continued in order to complete the plans for the vast system of water storage that will ultimately increase by one-third the fertile area of the United States. The artesian conditions in the arid west, in the Black Hills in Wyoming and South Dakota, are another subject of study. The sum of $100,000 was voted by Congress for the hydrographic work of the U. S. Geological Survey during the current fiscal year. This is double the amount appropriated for the purpose last year.

RAILWAYS, RIVERS, AND STRATEGIC TOWNS IN MANCHURIA

With the exception of some small gaps in Manchuria, only a few hundred miles in all, the Trans-Siberian Railway from St Petersburg to Port Arthur and Vladivostok is completed (see map opposite page 297). Trains from St Petersburg proceed direct to Irkutsk, on Lake Baikal. Heavy ice-breaking boats ferry the cars across the lake to Missoyaga, whence they are hauled to Onon and Stryetensk. Onon is the northern terminus of the branch to Port Arthur. Stryetensk is the head of the water-route down the Shilka and Amur Rivers to Khabarosvk, from which a railroad runs to Vladivostok, a distance of 475 miles. The branch from Onon to Port Arthur is being built in sections, most of them already constructed. Trains are now running northward from Port Arthur for 650 miles to Harbin, and probably before the end of summer they will reach Onon. The chain from St Petersburg to Port Arthur will then be complete. Serious trouble with the Chinese in Manchuria may, however, not only interrupt construction for months, but may endanger hundreds of miles of track already laid.

A branch line from Harbin is being pushed southeastward 500 miles to Vladivostok. This will probably before many months connect Vladivostok both with the main Siberian line and also with Port Arthur. Port Arthur has at present a combined railway and water-route to Vladivostok, which in turn has a combined railway and water-route to Stryetensk, the terminus of the Siberian Railway. The present means of transportation from Port Arthur to Vladivostok is by rail to Harbin, thence nearly 1,200 miles by river down the Sungari till it joins the Amur, then down the Amur to Khabarosvk; and from there by rail to Vladivostok. The trip takes eight to fifteen days. The rivers are open from May to October.

Thus Russia can easily throw thousands of soldiers into nearly every section of Manchuria. Sections to which her railways do not yet penetrate she can reach by the Shilka, Sungari, and Amur Rivers. She has on these rivers numerous flotillas of steamers and large barges. In the last few months alone 15 large steamers and 40 barges have been added to her river fleet. Troops coming from Europe and western Asia would be brought by rail to Stryetensk; thence they would be carried down the Shilka and Amur Rivers in flotillas to the junction of the latter with the Sungari. From here they could either be forwarded up the Sungari to Harbin, and thence by rail distributed among the cities of Kirin, Mukden, and Port Arthur, or they might continue on to Khabarosvk, and thence proceed by rail to Vladivostok. In case the former route to Port Arthur was interrupted by the Chinese troops, a fleet of transports could meet the Russian soldiers at Vladivostok and carry them the 1,250 miles around Korea to Port Arthur in five to eight days. When the Onon-Harbin and the Harbin-Vladivostok branches are completed an invasion of Manchuria will be a very simple matter.

Most of the towns of strategic importance to the safety of the railway lines through Manchuria are held by Russian troops. Harbin, the central meeting-point of the railway coming north from Port Arthur, of that going east to Vladivostok, and of that coming south from Onon, and also the head of nav-

igation on the Sungari River, will soon be the largest and most thriving inland city of Manchuria. It is a good example of Russian enterprise and push in the Far East. In February, 1898, not even a hut marked the spot. On the opening of navigation in the Sungari River that year the Russian engineers found that their larger steamers could not ascend the river to the point first chosen as the junction of the three railway branches, Khulanchen; so they decided on the site of the present Harbin, which is 30 miles lower down the river. In the few months since there has risen a splendid city of substantial houses and office buildings, with broad, well-paved streets, all lit by electricity.

Blagovestchensk, the capture of which was attempted by the Chinese recently, is on the Amur River, somewhat more than half-way between Stryetensk and Khabarosvk. It is important strategically, as its possession by Chinese troops would interrupt all communication between these towns, which, until the railroad from Onon to Harbin is finished, is the only route by which Russia can send to Vladivostok and Port Arthur the supplies and soldiers coming over the Siberian Railway. The town has 38,000 inhabitants, some of whom possess much wealth and handsome residences. At Aigun, a town of 15,000, and also the scene of some fighting, was signed in 1858 the treaty which opened the Sungari to Russian steamers. Along the northern bank of the Amur at intervals of 20 to 30 miles are numerous thriving villages, which were planted as Cossack posts by Mouravieff previous to 1858. Kirin, ten days by steamer from the mouth of the Amur, is the center of the most fertile country of Manchuria. It has a population of about 200,000. A small Russian garrison is located here. Tsitsikar has about 30,000 inhabitants and Petuna nearly 60,000

G. H. G.

Culebra, lying 20 miles east of Porto Rico, is about five miles long and two and a half miles wide. Viegas, or Crab Island, is half as far away, and is four or five times the size of Culebra. Dr Ullrich, the medical officer attached to the U. S. Coast and Geodetic Survey party that has been surveying the eastern shore of Porto Rico and connecting it with Viegas, Culebra, and St Thomas, gives some interesting information about Culebra. The climate is somewhat cooler and less rainy than that of Porto Rico. The general health of the people is good, but, strange as it may seem, the most prevalent diseases are consumption and rheumatism. Malaria also exists to a considerable extent where the soil favors its development. There is no good drinking water on the island except what the natives catch during the rainy season in two large cisterns. This water is dealt out daily to the people at the rate of one gallon per head for adults and one-half gallon for children. There are only two streams on the island that flow during the entire year. Water can be found by digging wells, but it always develops a peculiar odor after standing, and has a cloudy appearance and brackish taste. The island has excellent grazing facilities, and at least 2,000 head of fine cattle were seen. The most urgent recommendation of Dr Ullrich is that all drinking water should be either distilled or boiled. If this precaution is taken, he believes the climate of Culebra will prove as healthy as that of many favored places in the United States.

THE FIRST AMERICAN CENSUS OF PORTO RICO

The surprising preponderance of the white race, the density of the population and the evenness of its distribution throughout the island, the small number living in cities, the insignificant percentage of the foreign-born, the unusually large proportion of children, the small number of persons over 45 years of age, and the very high percentage of single persons (not including those living together as married), are the main facts revealed by the census of Porto Rico, taken October 16, 1899, under the supervision of the War Department. The total population is 953,243. The average number of persons to the square mile, 264, is about the same as that of Massachusetts, twice that of New York, and seven times that of Cuba. The evenness of settlement is especially remarkable, the least settled district having 58 persons to the square mile, about the same as the density of Indiana. Only two cities have a population exceeding 25,000—San Juan with 32,048 and Ponce with 27,952. While in Cuba 32.3 per cent and in the United States 29.2 per cent live in cities above 8,000, in Porto Rico only 8.7 per cent live in cities of this size. Again, while in Cuba 47.1 per cent, or nearly half the population, live in cities above 1,000, in Porto Rico only 21.4 per cent live in towns above 1,000.

The population would seem to be growing more rapidly than prior to 1860, the decennial rate of increase between 1887 and 1899 being 16.2 per cent, about the same as that of Ohio and Tennessee. The average increase of population in the interior has been more rapid than that on the seacoast—explained by the census experts as being probably due to the depressed condition of the sugar cane growing in the coast plains.

Contrary to general expectation, Porto Rico contains a large preponderance of native whites, 61.8 per cent of the total population. As this same revelation occurred in the case of Cuba, it is a question whether a like careful enumeration of the Central American Republics, of Brazil, and Mexico, might not show a larger number of white persons in each of these countries than is usually credited to them. Children under ten years of age form 31 per cent of the total population. Corresponding figures for the United States are 24 per cent and for Cuba 22.7 per cent. Persons over 45 years of age in Porto Rico form only 11.8 per cent, while in the United States they form 17.2 per cent and in Cuba 14.2 per cent, of the total population. Only three persons in every two hundred are foreign born.

Another interesting condition brought to light by the census is that the total number of persons married and living together as married amounts to only one-fourth of the population, whereas in the United States two-fifths of the population are married. This may be partially explained by the large number of children, for 49.6 of the population are under eighteen years of age. As in Cuba, the proportion of those living together as husband and wife by mutual consent is very large, 8.9 per cent, while 16.6 per cent are married, and, as in Cuba, the excessive expense of the marriage ceremony is the explanation. Education is in a very backward condition, 77.4 of those of ten years and over not being able to read or write and only seven attending school out of every 200 children under ten years of age.

U. S. BOARD ON GEOGRAPHIC NAMES

The decisions of the U. S. Board on Geographic Names will hereafter be published in the NATIONAL GEOGRAPHIC MAGAZINE. All the decisions of the Board up to June 1, 1900, are included in a report recently submitted to President McKinley and now in press. The Board recommended that, in addition to the usual number, some 1,800 or 1,900, 8,000 extra copies be printed for general and departmental use. On this recommendation the Senate acted favorably, but the House of Representatives took no action. The Board therefore has no copies of this report for distribution, and persons desiring copies should apply to their Representatives in Congress. The following are the decisions rendered since the report went to press:

Alamoosook; lake in town of Orland, Hancock County, Maine. (Not Great [pond].)

Bolden; run, Franklin township, Fayette County, Penna. (Not Boland.)

Brewer; pond, Penobscot County, Maine. (Not Orrington Great.)

Carasaljo; lake, Ocean County, N. J. (Not Caracaljo.)

Cotteral; brook, Ocean County, N. J. (Not Cotterall's.)

Douglas; post village and town, Worcester County, Mass. (Not Douglass.)

East Douglas; post-office and railroad station, Worcester County, Mass. (Not East Douglass.)

Garrett; island at mouth of the Susquehanna River, Cecil County, Md. (Not Watson.)

Green; lake, Hancock County, Maine. (Not Reed's [pond].)

Greenlake; post-office and railroad station, Hancock County, Maine. (Not Green Lake.)

Grove City; post-office and railroad station, Franklin County, Ohio. (Not Grove.)

Heagan; mountain, Waldo County, Maine. (Not Heagen.)

Lacarpe; creek, Ottawa County, Ohio. (Not Lacarne.)

Leonia; post-office and railroad station, Kootenai County, Idaho. (Not Leonai.)

Little Sandy; creek, Fayette County, Penna., and Preston County, W. Va. (Not Gibbons nor Gibbons Glade.)

Nikolaiefsk; town on the Amur River, 25 miles from its mouth, eastern Siberia. (Not Nicolaieffsk, etc.)

Osborn; island in Manasquan River, Monmouth County, N. J. (Not Osborne.)

Phillips; lake in Dedham, Hancock County, Maine. (Not Filtz, Fitts, nor Fitz [pond].)

Pine; knob in South Union, Fayette County, Penna. (Not Piney.)

Prestonsburg; magisterial district and post-office, Floyd County, Ky. (Not Prestonburgh.)

Sedgeunkedunk; stream, tributary of Penobscot River, Penobscot County, Maine. (Not Segeunkedunk.)

Souadabscook; river, Penobscot County, Maine. (Not Soadabscook nor Sowadabscook.)

Swan; lake in Swanville, Waldo County, Maine. (Not Goose [pond].)

Toluca; post-office and railroad station, Los Angeles County, Cal. (Not Lankershim.)

Whiting; post-office and railroad station, Ocean County, N. J. (Not Whiting's.)

FOREIGNERS AND FOREIGN FIRMS IN CHINA

There were more Americans resident in the Chinese treaty ports in 1899 than there were persons of any other nationality except English and Japanese. Of the 17,193 foreigners of all nations living last year in the Chinese treaty ports 2,335 were Americans and 5,562 English. The Japanese numbered 2,440, the Russians 1,621, the Portuguese 1,423, the French 1,183, the Germans 1,134, the Spanish 448, the Scandinavians 422, the Belgians 234, the Italians 124, the Dutch 106, and all others 161. Foreigners living in Port Arthur, Hongkong, and other ports ceded to European powers are not included in this category.

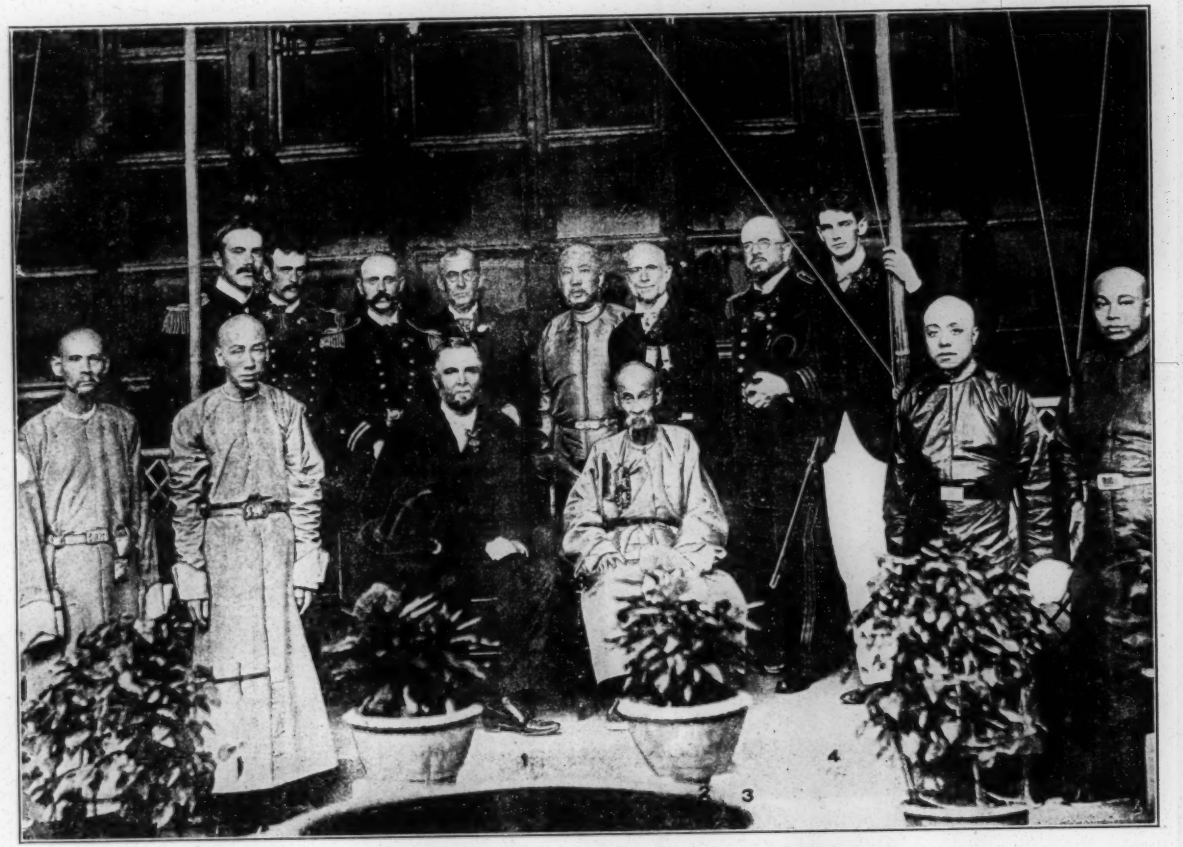
The Russians have recently been entering China in greater numbers than any other nationality. In 1898 there were only 165 Russians in the treaty ports, while one year later there were as many as 1,621, an increase of 882 per cent during twelve months. The number of English rose 414, of Americans 279, of Japanese 742, of French 263, and of Germans 91. In 1899 there were 70 American firms doing business in these ports, an increase of 27 over the preceding year. Of French firms there were 76, an increase of 39 in one year, and of Japanese 195, an increase of 81. The English were about stationary, having 398 firms in 1898 and 401 in 1899. The Germans had 115 firms, the Portuguese 10, the Belgians 9, the Italians 9, and other nationalities 29. It is a curious fact that there were only 19 Russian firms in all these ports. In 1898 there were 165 Russians and 16 business houses. One year later the number of Russians had risen to 1,621, but of Russian business houses there were only 19.

The principal treaty ports, of which there are about 30, are Canton, with a population of probably two millions; Tientsin, with about one million; Hankau, with 800,000; Shanghai, with over 400,000; Chifu, with 35,000; Amoy, with 100,000; Niuchwang, with 60,000; Fuchau, with 650,000, and Swatow, with 35,000.

THE Chinese farmer is the most economical of all tillers of the soil. In South China he reaps at least two and usually three or four harvests every year, but in spite of such constant draining the soil is as fertile as it was thousands of years ago. He saves everything for fertilizer. Everywhere are open, odorous vats, steaming with the soaked refuse of straw, vegetable ends, leaves, and bits that can serve for nothing else. When the mass is thoroughly decayed the water is drained off in buckets and poured over the growing rice. The sediment that settles in canals is minutely scraped up, dried, and scattered over the fields. The pigsty is cleaned only once in so often, because a too frequent cleaning would impair the quality of the filth. Even the dust and sweepings of the house are hoarded by the wife, who expects to get enough from their sale to keep herself supplied with brooms.

A GROUP OF CHINESE FARMERS

From Commander Harrie Webster's collection of Chinese pictures



FROM THE LATEST PHOTOGRAPH OF MINISTER CONGER, TAKEN IN MAY, 1900

1. Minister Conger 2. Viceroy Foo Chow 3. U. S. Consul 4. Commander Knox, U. S. Navy U. S. Naval officers and Chinese officials

By courtesy of The Evening Star, Washington, D. C.

THREE BOOKS ON CHINA

China: The Long-lived Empire. By Eliza Ruhamah Scidmore, Foreign Secretary of the National Geographic Society, Author of "*Jinrikisha Days in Japan*," "*Java: The Garden of the East*," etc. With many illustrations. 8vo, pp. xv + 466. $2.50. New York: The Century Co. 1900.

Made timely by the chance of national events, Miss Scidmore's latest book is a milestone marking the progress of Occidental knowledge concerning the Far East. Writing in narrative style, touching lightly on the greater episodes and characters in the history of The Long-lived Empire—and this chiefly in connection with their monuments and relics—ostensibly recording her own observations and experiences, and referring in incidental fashion only to previous travelers from Marco Polo and Abbé Huc to Rockhill and Sven Hedin, and to the standard book-makers from Yule and Wade to our own Wells Williams, Heber Bishop, and General Wilson, the author skims the cream of a rich literature, condenses much knowledge into small space, and imparts a pleasing personal flavor to the lump. The permanent value of the work is enhanced by the fact that the chapters were written before the recent Boxer outbreak, with its world-shocking consequences, so that the treatment is temperate and judicial. Viewed in the light of recent events, portions of the book—especially the opening chapter on "The Degenerate Empire"—seem curiously prophetic. There is an ethnologic aroma to this initial chapter: "No Occidental ever saw within or understood the working of the yellow brain, which starts from and arrives at a different point by reverse and inverse processes we can neither follow nor comprehend. There is little sympathy, no kinship nor common feeling, and never affection possible between the Anglo-Saxon and the Chinese. Nothing in Chinese character or traits appeals warmly to our hearts or imagination, nothing touches; and of all the people of earth they most entirely lack 'soul,' charm, magnetism, attractiveness. We may yield them an intellectual admiration on some grounds, but no warmer pulse beats for them" (pp. 4, 5). These expressions touch on the fundamental fact of ethnology that, while all minds of given culture-grade respond alike to like stimuli, minds of different degrees of culture, different races, do not work alike; the utterances imply realization of the fact (whatsoever the view of the theory) that the users of the highly associative Chinese language can never harmonize with the users of concrete Anglo-Saxon speech—at least until the higher vehicle of thought replaces the lower, as in certain brilliant examples of recent history; and these, like other passages leavening the book, explain the charm of China to the Occidental traveler and reader. "It is a land of contradictions, puzzles, mysteries, enigmas" (p. 6). The second chapter, "The Edge of Chihli," describes the way now trod by foreign feet and held by foreign arms, and the third, "Tientsin," portrays the ancient city of over a million people now showing large in the eyes of the world; the seventh chapter, "The Tartar City of Kublai Khan," and the eighth, "Imperial, Purple Peking," are of no less living interest today, while the

ninth chapter, "The Decadence of the Manchus," depicts the present governmental structure, gives some account of the governmental personnel, and reveals the weaknesses in the armor of the dynasty today—its presentation being especially illumined by the frontispiece to the book, a curious half-portrait, half-hashish-vision, of the Empress Dowager, Tsi An. Half a dozen chapters follow on Pekin and its environs, and another brings out new views of "The Great Wall of China;" while the chapter on "The Valley of the Ming Tombs" is of both historical and archæologic interest, as is that on "Suburban Temples." The descriptions of Shanghai and Canton are vivid; the sketch entitled "In a Provincial Yamun" gives suggestive insight into diplomatic and social China; "The River of Fragrant Tea-fields" outlines that industry which forms China's strongest bond with the moving world; while the twenty-eighth and final chapter, "The Chinese New Year," touches a subject attractive not only to the tourist, but to all citizens and subjects reached by wandering celestials—for wherever he goes the almond-eyed devotee carries a time-cult curiously suggestive of the time-factor formed by his ancient empire in the history of the world. The author concludes: "China is very old, very tired, sick. It craves rest and peace—anything for peace; peace at any price. It does not want to be dragged out into the fierce white light and the contests of the new century" (p. 459). Yet she qualifies the diagnosis: "The Occident is fortunate in assisting at one of the many great downfalls, but it need not assume that this is at all the end, the absolute and final ruin, the last wreck and crash of the old empire, of its curious, four-thousand-year-old civilization, all because the present *parvenu* Manchu dynasty happens to fall. It has broken up before!" (p. 3). On the whole, the work is thoughtful, clear, scholarly, scintillating where not steadily brilliant, as is to be expected of the author; it is Miss Scidmore's best book. The publishers have done well; the printing is admirable on excellent paper, the numerous illustrations are beautifully executed, the index is clear and half full enough, while the cover is an appropriate symphony in yellow and red and dragon-eyed ideographs.

W J M.

China in Transformation. With 16 maps and one cut. 8vo, pp. x + 397. $3.00. 1899.

Overland to China. With 36 illustrations and four maps. 8vo, pp. xii + 465. $3.00. By Archibald R. Colquhoun. New York and London: Harper & Brothers. 1900.

The author of these works, by profession a civil engineer, is a geographer of world-wide reputation. He has traveled widely, especially in the Far East, and with rare powers of observation and ripened judgment. He has held several posts of responsibility in India and Burma, and has spent many years in sojourn and travel in China and its neighboring lands.

The first of these volumes is especially devoted to China, and within its pages is condensed an extremely full and interesting account of the Flowery Kingdom. The book opens with a geographic description of the country, a brief but clear presentation of its topography, especially in its relation to the people and their industries. Estimates are given of the population, and the author is

disposed to accept the minimum rather than the maximum estimate of its number, placing it considerably under 400,000,000. A curious fact is that their geographic names are not names, but descriptive appellations. It is as if we should say, not "Long Island," but "the long island."

China, although inhabited by civilized man for thousands of years, has scarcely commenced the development of her natural resources. Although abounding in coal and ores of iron, copper, lead, gold, and other metals, the development of these deposits has barely begun. Although producing in the aggregate vast quantities of certain crops, tea, tobacco, opium, silk, and cotton, the country has astonishingly little trade, even internal trade. This is owing to the fact that there are very few railroads and that the wagon roads are everywhere almost impassable. Coal, which at the pit's mouth is sold for fifteen cents per ton, brings as many dollars per ton ten miles away. One part of the empire may be suffering from famine while one hundred miles away the people may be rolling in abundance.

Two-thirds of the foreign trade of China is in the hands of Great Britain, the remainder being mainly with Japan, the United States, Germany, and Russia. The foreign trade is carried on almost entirely through the treaty ports, and foreign goods penetrate the interior of China only through Chinese merchants. Lacking push and initiative, as they do, the introduction of foreign goods into the interior is making very slow headway. Russia and Germany are doing somewhat better than other nations, inasmuch as they have agents scattered over the interior for the purpose of introducing their goods, and in recent years more progress in the extension of commerce has been made by them than by their rivals.

The government of China rests upon the family as a unit and is built upward and outward therefrom. It is a development of the principle of local self-government and is highly organized, especially in its smaller units. Herein lies the secret of the strength of the Chinese people. Dynasties may come and go (although in no other country on earth have single dynasties held their places so long), but the Chinese are still Chinese. They were conquered centuries ago by the Manchus and have been ruled by them since, but they have conquered their conquerors and amalgamated them with themselves. China is divided into eighteen provinces, each with a governor or viceroy, who is in most matters independent of the central authority at Pekin, being accountable to him for but little more than the payment of taxes. The Emperor is the father of the people, standing between them and the Supreme Ruler, and is accountable to him alone.

The second book is, in the main, devoted to countries other than China. In 1898–'99 the author journeyed *via* the Trans-Siberian Railway to Lake Baikal; thence to the desert of Gobi, to Pekin, southward to the Yangtze, and up that river to the head of navigation; thence through the southwestern provinces of China to Haifong. Siberia, with its railway, and Manchuria are described. The author shares with most Europeans an exaggerated idea of the greatness of Russia's undertaking in the construction of the Siberian Railway, a matter of building some 4,000 miles, or about one-third as much as has been built in the United States in a single year, and that along a very favorable route. Of

the importance of this railway to Russia in a material and economic view there can be no doubt.

His picture of Pekin and of the life of the legations there in past and recent times is exceedingly graphic. The ancient walled city, swarming with human life, whose hostility to the handful of foreigners is held in check only by fear; the little settlement of foreigners near its center, without social intercourse or relations with any outside their own circle, are strikingly pictured. Until recent years this little colony of foreigners was by its isolation a unit in all matters political and social, but with the advance of Russia in the accession of China's territory and the success of Germany in matters of trade, dissensions sprang up, and in later years the little colony has failed to present a united front either in matters political or social.

China is disintegrating. Russia has made her preparations for the final catastrophe. Indeed, she has, in all probability, aided in bringing on the crisis, and is ready to lay hands upon all the territory which she can acquire. Germany, though late in entering the great game, is also prepared to seize whatever may help her trade. France, on the southern border, is aiding and abetting Russia with a view to receiving her share of the spoils. On the other hand, Great Britain, the United States, and Japan are agreed in supporting the tottering empire, in the opening of the country to trade, and in the maintenance of the open door. The next few months will probably show whether the Anglo-Saxon, the German, or the Slav will control the situation. It is America's opportunity.

H. G.

A GENERAL continuous map of the region from St Michael to Port Clarence the U. S. Coast and Geodetic Survey hopes to present by the end of the season. The position of Sledge Island, lying to the westward of Cape Nome; the shoreline on the northern part of Norton Sound and in Golofnin Bay, and the approaches to and harbor of Port Clarence will be determined in great detail.

TELEGRAPH lines connect Pekin with the principal towns of China and by the Trans-Siberian telegraph line with Europe. From the towns on the border of Manchuria wires run to Pekin; also from Port Arthur, Seoul, and Chemulpo. Canton and the principal cities on the seaboard connect with the capital *via* Shanghai and Chifu. From the coast one line penetrates from Canton to Yunnanfu, the capital of the province of Yunnan, and another extends up the Yangtze Valley to the border of Tibet.

MISSIONARIES have penetrated to nearly every province in China. Pekin may perhaps be called the center of the Catholic missions and Shanghai the Protestant center. The field of the American Presbyterians, who have more workers in China than any other single denomination except the China Inland Mission, has been Shantung. The Baptists and others have pushed on to the more western provinces. The Catholics divided the country into five sections, one being allotted to each of the five orders—the Franciscans, the Jesuits, the Dominicans, the Augustinians, and the Lazarists. Probably 1,425 is a fair estimate of the number of American and European missionaries in the empire. The Catholics claim 1,000,000 native converts and the Protestants about 100,000.

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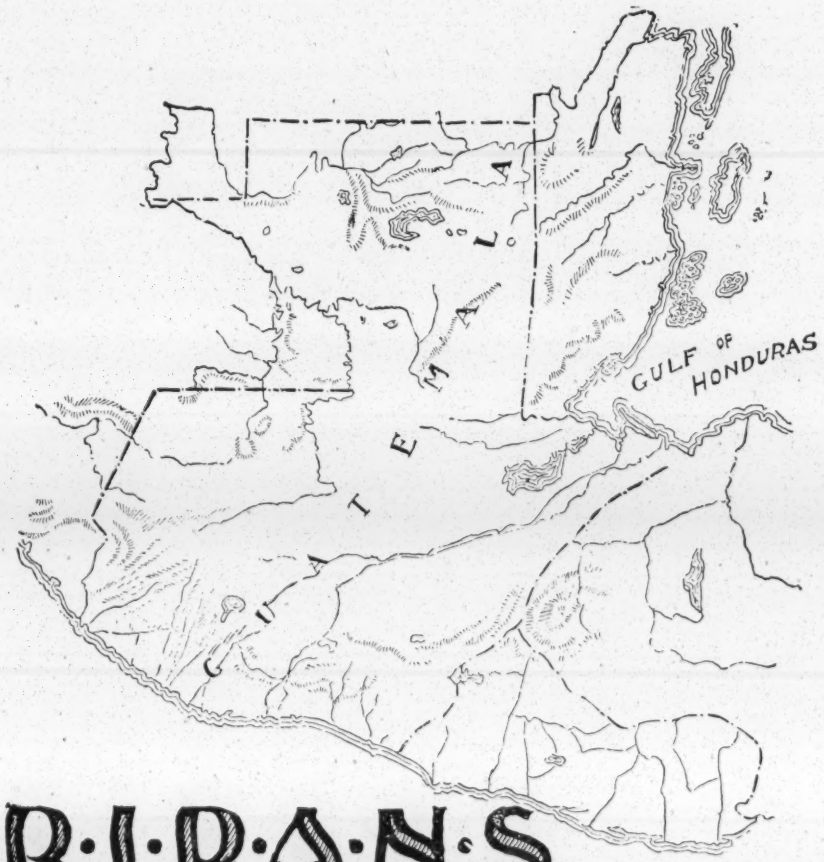

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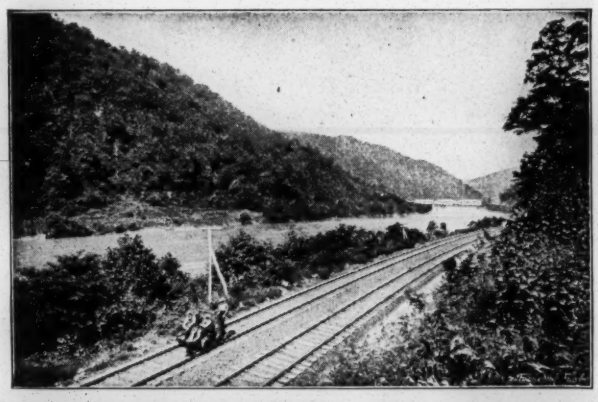

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